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NOTES ON MEDICAL EDUCATION.

NOTES ON

MEDICAL EDUCATION.

BY

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TO THE MEMORY OF

William Sands Cox,

F.R.C.S., F.R.S., D.L.,

(SOMETIME DEAN OF THE FACULTY IN QUEEN'S COLLEGE

AND

CONSULTING SURGEON TO THE QUEEN'S HOSPITAL,

WHO ESTABLISHED

THE BIRMINGHAM ROYAL SCHOOL OF MEDICINE

IN THE YEAR 1828,

AND WHO AFTERWARDS FOUNDED

THE QUEEN'S COLLEGE AND THE QUEEN'S HOSPITAL,)

THESE PAGES ARE AFFECTIONATELY DEDICATED

BY A GRATEFUL APPRENTICE AND COLLEAGUE.

PREFACE.

"* * * * a virtuous and noble education; laborious indeed at the first ascent, but else so smooth, so green, so full of goodly prospect, and melodious sounds on every side, that the harp of Orpheus was not more charming."

MILTON: "Tract on Education."

"Vox emissa volat, litera scripta manet."

"And what is writ, is writ.
Would it were worthier!"

BYRON: "Childe Harold's Pilgrimage."

FOR the last twenty-eight years, from 1861 until now, I have been engaged in medical education. During that time I have had the good fortune to be occupied continuously, boy and man, pupil and teacher, in the Birmingham Medical School. Ever since I took my degree, I have had the honour to share in training the students of our

school in some of the sciences and arts which compose the principles and practice of medicine. Since I became a teacher, I have, of necessity, not ceased to continue my own education. In the unbroken happiness of this work, I have sometimes ventured to express my experience upon particular points in medical training, when it has been my office to deliver in public certain formal addresses. While I hope I dealt with these matters in the light of some practical knowledge, I am at least sure I was moved by the keenest sympathy when I spoke of the difficulties and of the dangers, of the risks and of the responsibilities, of the trials and of the triumphs, which belong to those who prepare themselves for the profession of medicine. In hospital and in college I have been permitted, by the confidence of my colleagues, to make addresses upon medical education to large assemblages of members of our School. Lately I have been led to collect these scattered utterances in this little book. In the first leisure of my retirement from hospital teaching, I have examined the papers I have written aforetime, and gathered from them those fragments which have been yielded by my essays in

medical education. These I have arranged and rewritten, with some pruning and with some expansion, and I have corrected them by an experience which is later, and so, perhaps, nearer ripeness, in the hope that I may have the good fortune to help some toilers who still struggle at the gates.

BIRMINGHAM,
August 11th, 1889.

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"Beholding the bright countenance of truth in the quiet and still air of delightful studies."

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CHAPTER I.

A COLLEGE ADDRESS.

Welcome. — Progress of the Birmingham Medical School.—Mr. Sands Cox.—Union of Colleges and Hospitals.—Functions of a Medical School.—Plurality of "Qualifications."—The Sciences and Arts of Medicine.—Four Methods of Medical Study.—Importance of Anatomy.—Hospital Practice Concurrent with Collegiate Study.—Participation in Hospital Work.—Method of Clinical Work.—The Spirit of the Clinical Worker.—Choice of Diplomas.—Professional Pride.

It is my duty to-day, when we inaugurate the commencement of another

academical year, as the representative of the Council and Professors of our College, to address a few words to our old and new pupils in the faculty of medicine.* My first words shall be words of hearty welcome. In the name of those who have honoured me by their confidence and on whose behalf I am privileged to speak, I offer a cordial welcome to every student in this theatre. Some of you are here for the first time; perhaps some of you are proud to count the opening session as the last of your collegiate curriculum; most of you return to work in which you have already made considerable progress. I hope you are all filled with an earnest determination to avail yourselves to the utmost of the

* Delivered in the Lecture Theatre of the Queen's College at the opening of the Winter Session of the Medical Faculty, October, 1879; published in the *Birmingham Medical Review*; since revised and entirely re-written.

great opportunities which are afforded to you in our Medical School for learning the principles and practice of our profession — opportunities which your teachers have striven to improve — opportunities greater, perhaps, than you are now able to esteem them; greater, certainly, than many of your predecessors have enjoyed.

All of us may justly be proud of the progress, prosperity, and promise of the Birmingham Medical School. For many years its progress has been steady and uninterrupted. Its prosperity has never been more assured; its promise has never been more encouraging. Founded more than half a century ago, by my late master, Mr. Sands Cox,* whose name can never be mentioned within these walls,

* Mr. Sands Cox gave his first course of "Anatomical Lectures, with Physiological and Surgical Observations," at 24, Temple Row, in 1825, and opened his lecture rooms in Snow Hill in 1828.

which he loved so well, without respect, our Medical School has had a memorable and chequered, and yet an honourable, history.* Memorable is that history—in that its earlier records register the marvellous success attained by the

* In *Aris's Birmingham Gazette*, dated November 7th, 1825, the following advertisement appeared:—"Mr. William Sands Cox will commence a course of anatomical lectures, with physiological and surgical observations, on Wednesday, the first of December, 1825, at 12 o'clock. The course will be continued during the ensuing winter, on Mondays, Thursdays, and Fridays, at 24, Temple Row. Mr. Sands Cox has great gratification in stating that the course he proposes to pursue has met with the approbation of Dr. Johnstone, Dr. Pearson, the physicians and surgeons of the General Hospital, Dispensary, and Town Infirmary, and other distinguished practitioners."

At a meeting of some of the senior members of the medical profession, held on the 15th of April, 1828, at the house of Mr. Sands Cox, in Temple Row, under the presidency of Dr. Booth, Mr. Sands Cox submitted the details of his project for the establishment of a completely equipped medical school, and it was resolved "to form a school of medicine and surgery in Birmingham" forthwith.

devoted and unwearied enthusiasm of a very remarkable man. Chequered, alas! has that history been by some unfortunate divisions and administrative disasters which have sometimes even threatened the very existence of our school, but which a later and enlightened harmony has long since swept away, I hope, for ever. But honourable, withal, does our history seem, when we remember the self-sacrificing zeal of a goodly succession of teachers, not a few of whom have ranked with the brightest and best in our profession; and honourable, too, is our history when we recall a roll of students inscribed by some who have proudly borne the name of our school through the honours-lists of colleges and universities, and who have won their way to the highest eminence in science and in medicine.

Since I first knew the Birmingham

Medical School some important and most beneficial changes have been made in its constitution. We no longer see the General Hospital, with its little college, and the Queen's College, with its little hospital, forming two distinct medical schools, weakening each other by their rivalry, and dividing the teachers of the town, and the students they could attract, in ever varying proportions. First, the two colleges became united. The Queen's College of to-day represents the rival Queen's and Sydenham Colleges of a dozen years ago, and it still numbers, I rejoice to say, amongst its senior professors, several of the teachers of the older schools.* This happy fusion, which promises to be indissoluble, was followed by another and, to my mind,

* The Queen's College and the Sydenham College were merged together to form a reconstructed Queen's College in the year 1867.

more important union. Seven years ago the General Hospital (the older institution) and the Queen's Hospital (the younger institution), at that time still competing clinical schools, although each was working in conjunction with the reconstructed Queen's College, (formed out of the coalescence of the elder Queen's and Sydenham Colleges), became formally associated for the joint practical instruction of medical students.* This co-operation of the two great medical charities of our town—the complement of the amalgamation of the colleges, and without which that salutary amalgamation could scarcely be lasting—conceived and completed, not without some individual sacrifices, for the welfare of the pupils of the school, has more than realised the sanguine expectations of its promoters. I hope

* In 1872.

and believe this union will endure. In our great school you have now magnificent clinical opportunities. You have the privilege of watching and sharing in the practice of twenty-two hospital physicians and surgeons, who are responsible for the charge of 400 beds, and the yearly care of 4,000 in-patients and 40,000 out-patients.* Besides their great departments in medicine, surgery, medical emergencies, and surgical casualties, the General and the Queen's Hospitals have "special" departments in obstetrics, gynecology, ophthalmic surgery, and dentistry. In all these you have indeed the advantages of the services of a staff of clinical teachers, and the experience of a *clientèle*, surpassed in number and extent by few only of the medical schools of London, and unequalled in England outside the

* These numbers have grown since 1879.

capital. To-day, then, we see the Birmingham Medical School firmly constituted by a prosperous union of the leading medical and teaching bodies of the town. The General and the Queen's Hospitals, governed in their educational affairs by a Clinical Board elected from the honorary professional staffs of the institutions, formally share the clinical teaching of our pupils, and are linked to the Queen's College to form one school.* A generous and enlightened policy has brought into harmonious association three great kindred institutions for a high and common object; and it has wisely so united them that they are associated only, and not amalgamated, each maintaining its own administrative

* The General and the Queen's Hospitals were united to each other and to the Queen's College, and placed under the direction of the Birmingham Clinical Board, five years after the amalgamation of the Queen's and Sydenham Colleges, namely, in 1872.

independence, each preserving full scope for the separate development of its own resources and work, and each reciprocally extending the influence and usefulness of the others. I hope this good genius of co-operation may soon consolidate and bring into our school all the best medical teaching strength and all the clinical material of this great town, so that your opportunities for obtaining a sound practical knowledge of your profession may be further extended in our Children's, Eye, Women's, and Orthopœdic Hospitals, and in our splendid asylums for the insane.*

Now, pray, consider with me, what are the functions of a medical school?

* Since this address was delivered the City Lunatic Asylum, the Eye Hospital, the Royal Orthopœdic Hospital, and the City Infirmary have become associated with Queen's College, and so made accessible to students of the Birmingham Medical School. The

Many, surely. But two are prominent, namely, to train medical students to become medical practitioners, and to teach them to pass certain examinations which are the legal tests of their fitness to practise. The former function, that of educating medical students to become practitioners of the medical arts, is the higher of the two, although you may not so estimate it now, in your eagerness for your diplomas. This higher function can be measured by no easily defined standard. It embraces many subtle and most powerful and far-reaching agencies, such as the "tone" and "surround-

"Queen's College Calendar," ably edited by Professor Windle, records these and other improvements in the school, and also relates that "in 1882 an arrangement was entered into with the Mason Science College by which the professors of chemistry, physiology, and botany in that college having been appointed professors of those subjects in Queen's College also, students of the latter institution attend the classes of these teachers held in Mason College."

ings" of the school, and the moral influence, example, and other personal qualities of its teachers. The way in which a medical school fulfils its second function, that of fitting students to pass the qualifying examinations for entrance into the profession, can be readily tested.*

I am sorry a medical student of the United Kingdom is bewildered by the plurality of licences to practise, from which, with certain restrictions, he is free to make choice. There is not now before you, unfortunately, a definite set of examinations which you cannot shirk, if you would, if you would enter our pro-

* In my address I gave here statistics showing the absolute and relative numbers of students who had recently passed, or failed to pass, the primary and final examinations of the Royal College of Surgeons of England for the diploma of member of that college. The results obtained by students of that Birmingham School were conspicuously satisfactory.

fession, and in preparation for which you must regulate and direct your various studies, and arrange those studies in due order as to duration, extent, proportion, kind, and succession. You have before you a dangerous and difficult choice of "portals." That is, you have before you a dangerous and difficult freedom of choice in a matter which has essential bearings, probably, upon many important issues, and certainly concerns your future professional position. You are free to choose, more or less in the dark, between a variety of examining and qualifying bodies, which bodies are empowered, by the final authority of the State, to test your knowledge from time to time, and at the end to commission you to practise some, or all, of the arts of medicine before the British public. You will find that these several examining bodies, be they

halls, royal colleges, or universities, make very unequal demands upon your time, your brains, and your pockets; that they determine in very varying degrees your subsequent professional status; that they fit or unfit you for the highest or for the lowest professional offices; and that some of them are so accommodating that you may look forward to satisfying them if at last you should fail before, or fear to approach, their more exacting rivals. There are now* in the United Kingdom no less than nineteen corporations chartered by the State to confer qualifying medical degrees and diplomas. These degrees and diplomas express no less than fifty or sixty several licences to practise, the possession of any one of which endows its owner with certain professional privileges, and entitles her or him to

* Even in 1889.

official registration by the Medical Council, and so to the exercise of the functions and rights and the enjoyment of the immunities of a medical practitioner. Can we wonder, then, at the confused notions which possess the public as to what is connoted by a qualification to practise? Can we marvel, then, at the perennial charm in which controversies as to the title of doctor seem to hold so many of the readers of professional journals? Perhaps we may some day see the Medical Council reconstituted with fuller powers, upon a broader and juster basis, including representatives of our medical schools (of schools like ours) and of the profession generally, as well as of the corporations, strengthened to frame rules for examinations, and enforcing unfailing punishment on those who practise without authority or unworthily;

and perhaps, too, we may some day see the universities and colleges of our country, while they still preserve their powers for supplementary admission to the higher qualifications—to fellowships and doctorates—united in a real conjoint scheme—in a scheme which provides a well-balanced minimum standard of examination for a licence to practise. Surely such a standard ought to be uniform as to students' curriculum, as to stringency of examinations, and as to cost in fees for examinations, in all divisions of the Kingdom.

In your course and career in this College, in your curriculum, as it is called, with us, you will find abundant opportunities for acquiring a complete knowledge of the subjects prescribed for your attention by the licensing authorities. Each of these subjects must at first be studied and practised separately,

if you would gain a clear conception of it. The medical whole is a synthetic product. But these subjects reciprocally support each other; they are truly supplementary and ancillary to each other, and their boundaries are loosely or closely interlaced. You must set yourselves to acquire a sound knowledge of them all, both in their general and practical developments, if you would fully understand the science, and practise with light and knowledge the great art, of healing. These subjects are anatomy, physiology, chemistry, botany, materia medica, therapeutics, medical jurisprudence, pathology, obstetrics, surgery, and medicine. Each is a science, and each science carries with it its cognate art. A science is a natural group of facts, sorted into order; it is knowledge systematised; it is an arrangement of the leading principles

or general truths relating to a given subject. The art which depends upon and flows from a science or a group of sciences consists of the rules of practice and the practice of the rules founded upon the principles of the particular science or sciences. A science has to do with knowing, an art with doing. You must learn each science, in order to understand its correlative art; you must practise each art, if you would illustrate and appreciate the principles of its science.

We teach you to employ four methods of study, and you must employ them all. You will be taught by lectures, by reading, by demonstrations, and by practice. You are required to attend lectures in which the principles of each science are set forth, explained, and illustrated; these lectures are delivered by the Professors of the College. Each of the great sub-

jects of medical education which I have named to you is here separately committed to the especial charge of one or more professors, who are responsible for its due exhibition to you, *ex cathedrâ*. Another method of study lies in your own private reading. Your teachers will direct you as to what books you may read with most profit, and you must diligently apply yourselves to the study of suitable systematic treatises upon each subject. You will find a third method of instruction at the hands of the able tutors and demonstrators of our College, who will give you plain, colloquial and personal expositions of the subjects of your studies. This method of teaching is indeed most valuable. The idle student, by inattention, by stopping his ears or shutting his eyes, may succeed in preserving his ignorance before a professor

at a lecture, but he can scarcely go through a well arranged tutorial demonstration without being a wiser and better man. Then, again, in the great method of practice, you have here abounding opportunities. You will be required to apply you hands to practical work in the dissecting rooms, in the museums, in the fields, in the chemical and physiological laboratories, in microscopy, and in the dressing rooms, wards, and mortuaries of our hospitals.

I cannot now attempt to urge upon you either the manifold positive or relative claims upon your attention of each of the several medical sciences. But, let me tell you, you must become good anatomists. Begin to be good anatomists by learning "the bones," so that you become good osteologists. Human anatomy, unlike chemistry, human physiology, and human patho-

logy, is now, excepting in its minuter histological developments, a complete science. You ought to master it thoroughly. You will be without excuse if you pass through your anatomical course and remain ignorant of any detail of naked-eye human anatomy. Your future professional happiness hinges here. It is not too much to say that if you would practise the art of healing in any of its branches with a tranquil conscience you must know anatomy with thoroughness. Whatever you have to do for the relief of the sick and suffering you cannot do it best without anatomy. Anatomy is the common ground of the physician and of the surgeon. It is the very corner stone of the medical sciences.

In your collegiate curriculum you must also equip yourselves with a serviceable practical knowledge of chemistry

and of human physiology. It will be his own fault if any of you leave this College and be not a sound anatomist, a sound physiologist, and a sound chemist. And here, too, guided by our distinguished professors of medicine, surgery, and obstetrics, you must so learn the principles of those sciences that you may appreciate and intelligently share in the practical application of those principles at our hospitals, and thus complete your academic training as sound physicians, surgeons, and obstetricians.

I hope I need not urge you to be diligent in your attendance upon hospital practice. If you need urging, I would urge you most earnestly. You are very properly required to attend hospital practice with regularity from the very beginning of your medical curriculum. The time before you for this part of your work is all too short.

While your college work and your hospital work ought to run harmoniously together during the whole of your time at a medical school, you will do well to give prominence to your collegiate work during the former half of your course, and afterwards you may fully develop your hospital opportunities. During the first half of your curriculum hospital practice, which then ought only to occupy a short part of each morning, must not be allowed to displace your collegiate studies in preparation for the earlier professional examinations of the licensing bodies. The greater part of the first two years of your studentship must be spent in preparation for these examinations. Let all things be done in due order. When you shall have passed these primary tests of your acquirements in physics, anatomy, physiology, chemistry, materia medica, and

botany, when you shall have studied the marvellous structure of the human body and learned something of its healthy development and working, something of the chemistry of the vital processes, and something of the nature, composition, and preparation of the therapeutic agents commonly used in medicine, then, and not until then, you may allow prominence to your hospital work. Then you may pursue the practical work which is probably more attractive to you than any other portions of your studies, then you may avail yourselves to the full of your great clinical opportunities, and take an active and understanding part in the relief of pain, and in the care and cure of cases of injury and disease. Idleness, with all its mischiefs, is the commonest cause of a medical student's failure to "qualify" at all, or in the right way, and at the

right time. But, next to idleness, I have found a frequent cause of these disasters in a misapplied and premature devotion to hospital work, when such work is pursued to the neglect of those fundamental medical sciences which especially demand attention in the earlier half of the medical curriculum. Your training must not be practical first and scientific afterwards. It must first be scientific and practical, and afterwards practical and scientific. You must learn the principles of the medical sciences before you can appreciate and apply with knowledge the rules of art which those principles supply.

By your hospital work I do not mean your mere attendance, however observant you may be, upon hospital practice, but your individual participation therein. Under proper restrictions and guidance there are many things you

can at once do for patients, with much advantage alike to them and to yourselves. The authorities of our hospitals very properly arrange to make useful, so far as possible, the services of medical students in the daily work of attending upon the sick. Take, then, so soon as you can, and so long as you may, an active part in hospital work. If you have willing hands and willing hearts you may do much that is useful that is not required of you. The examining boards inexorably require of you that you should hold surgical dresserships and physicians' clerkships in a recognised hospital for a due season before you receive your diplomas. If you spend three years in your curriculum, at least your last year, and if your course of hospital attendance extend to four years, as it ought to do at least, at least your last two years, should be

spent continuously in one or other of these offices. You must not rely too much on clinical lectures and demonstrations. I am sometimes afraid we have rather too much of these things now-a-days. Nothing must divert you from your own particular work. An essential and a large part of this work can only be done by yourselves. There is much you cannot learn by reading, or by hearing, or by asking questions. No amount of reading, no lectures, howsoever distinguished the lecturer, howsoever able his discourse, no demonstrations, howsoever attractive, can teach you to know the crepitus of a broken bone, the cachexia of cancer, the crepitation of pneumonia, the fluctuation of an abscess, the rub of pleurisy, or the murmur of a leaking cardiac valve. If you would do justice to the ample opportunities which our

hospitals afford you for obtaining a competent practical knowledge of your profession, these are among the things your own fingers must learn to feel, your own ears must learn to hear, your own eyes must learn to see, in your close personal observation at the bedside of the sick and suffering.

The best method of clinical teaching is that which educes the greatest amount of effort on the part of those who are being taught. The clinical teacher is a guide to the objects upon which his pupils should direct their attention. You must be taught to learn for yourselves. Let me read to you the words of one of the greatest clinical teachers of this century. Fifty years ago, to his class of students at St. Bartholomew's, Dr. Latham said :—"It is *your* present duty to exercise your observation carefully and unremittingly ;

and it is *my* present duty to point out the fittest objects, and place them in the light in which they can be most profitably seen. If ever the desire to view the beauties and sublimities of nature has led you to ascend some lofty eminence, you have probably taken with you one more familiar with the scene than yourselves as a guide; but you have still trusted to your own eyes and your own feelings to fill you with the delight of the prospect and tell you what to admire and wonder at; and you have required no more from the guide than to point with his finger, and say 'See here, and see there.' So, in entering this place, even this vast hospital, where there is many a significant, many a wonderful thing, you shall take me along with you, and I will be your guide. But it is by your own eyes, and by your own minds, and (may I add ?)

by your own hearts, that you must observe, and learn, and profit. I can only point to the objects, and have little more to say than 'See here, and see there.'"

That the way in which we do work depends much upon the spirit in which we do it is greatly true of clinical industry. With finer natures in the spirit of their work springs the sustainment of their power. I cannot leave the charming writings of Dr. Latham without asking you to allow me to read also to you a passage of his which has often comforted me, and in which, in eloquent words, with lofty mind, and with faithful heart, he describes the spirit in which clinical students and clinical teachers alike should work. After speaking to his pupils of the scope of their efforts, and pointing out to them that the human body in suffering is to

be their study and their care, he said:—
"And is it possible to feel an interest in all this? Ay, indeed it is; a greater interest than ever painter or sculptor took in the form and beauties of its health. Whence comes this interest? At first, perhaps, it seldom comes naturally: a mere sense of duty must engender it; and still, for a while, a mere sense of duty must keep it alive. Presently the quick, curious, restless spirit of science enlivens it; and then it becomes an excitement and a pleasure, and then the deliberate choice of the mind. When the interest of attending the sick has reached this point, there arises from it, or has already arisen, a ready discernment of diseases, with a skill in the use of remedies. And the skill may exalt the interest, and the interest may improve the skill, until, in process of time, experience forms the

consummate practitioner. But does the interest of attending the sick necessarily stop here? The question may seem strange. If it has led to the readiest discernment and the highest skill, and formed the consummate practitioner, why need it go further? But what if humanity shall warm it? Then this interest, this excitement, this intellectual pleasure, is exalted into a principle, and invested with a moral motive and passes into the heart. What if it be carried still further? What if religion should animate it? Why, then, happy indeed is that man whose mind, whose moral nature, and whose spiritual being, are all harmoniously engaged in the daily business of his life; with whom the same act has become his own happiness, a dispensation of mercy to his

fellow-creatures, and a worship of God."*

Be quite sure each of you has a clear notion of the position in our profession at which he proposes to aim. This is a decision most difficult, but you must make it in some part now. Do not fall into the frequent mistake that this is a decision which you can put off. At least you cannot put it off without grave risk of future disappointment. Beware of the fool's paradise of imagining that the easier diplomas may be taken now, and that afterwards, as opportunities happen, higher academic distinctions may be added unto you. It is true such future passage is not impossible, but it is exceedingly difficult if its earlier stages

* From Sir Thomas Watson's "In Memoriam," the same being a preface to the collected works of Dr. Peter Mere Latham, as published by the New Sydenham Society, in 1876

be not accomplished during your collegiate curriculum. For each of you his course in these matters must depend upon the due balancing of a variety of considerations, amongst which circumstances are length of time available for study, your age, previous educational attainments, intellectual capacity, habits, health, wealth. Do not let your ambition be of the kind "which o'erleaps itself and falls." Ambition is a passion which may be wisely and usefully indulged within due limits. Wise is the man who limits his ambition by what for him is attainable. What for each of you is attainable is a decision which you cannot make without help. Take such help at once from some friend who is a member of our profession. Such a friend will be able to explain to you the distinctions between the various professional degrees and diplomas. To

such advice I venture to refer you. But I may say to you now that if you propose to practise as a hospital physician, in a consulting professional position, you must take a degree in medicine at one of the universities, and that this should be supported by the membership of the Royal College of Physicians of London; if you wish to become a hospital surgeon, with a prospect of a consulting position in surgery, you must take the fellowship of the Royal College of Surgeons of England; if you aim at general family practice, you may be content with the licences in medicine and surgery which are granted by the Examining Board of the Royal English Colleges, but you will find advantage in the possession of a university degree.*

* The Examining Board in England is formed by the Royal College of Physicians of London and the Royal College of Surgeons of England. Every candi-

In saying this I can only speak in general terms, and I have in view practice in England. For practice elsewhere some details are subject to local modification.

I hope a genuine and unalterable love of science, a humane and abiding enthusiasm, and an honest desire to earn your bread in the work of an honourable profession, are chief among the feelings which have guided the choice that brings you here to-day. Remember, you have chosen a calling carrying with its practice

date who shall have passed the third or final examination of the Board is, subject to the bye-laws of the two Colleges, entitled to receive the licence of the Royal College of Physicians of London, and the diploma of Member of the Royal College of Surgeons of England (L.R.C.P., and M.R.C.S.). The regulations of this Board apply to candidates who commenced professional study on or after October 1st, 1884. Information concerning these examinations may be obtained upon application to the Secretary, Examination Hall, Savoy Place, London.

responsibilities which are often more pressing, more personal, more direct, and more undivided than attach to the pursuit of any other profession. If you would duly fit yourselves now for these responsibilities, which must come upon you hereafter when you pass into practice, you will seriously and constantly strive to make the most of your educational opportunities for the acquirement of professional knowledge and professional skill. But howsoever extended your knowledge, however great your skill, you cannot discharge these responsibilities aright unless you continue to train your hearts in courage and your minds to pure and lofty purpose. Bearing your responsibilities manfully, I would that you should pass from this school with a due sense of the dignity and worth of your calling; not with a contracted and contemptible class

conceit, but with broad human sympathies, tempered with that just professional pride which is one of the strongest incentives to self-sacrifice for any work which tends to foster professional unity or to raise our calling in public usefulness and esteem. Such a professional pride is the surest safeguard of professional probity.

CHAPTER II.

A HOSPITAL ADDRESS.

"In literary and scientific teaching the great point of economy is to give the discipline of it through knowledge which will immediately bear on practical life."

RUSKIN: "Political Economy of Art."

"Précepte commence, exemple achève."

"Longum iter est per præcepta, breve et efficax per exempla."—SENECA.

CHAPTER II.

A HOSPITAL ADDRESS.

Independence of the Medical Profession.—Advantages of a Generous General Education. — Value of Literature, Languages, and Logic.—Collegiate Training in Preparation for Hospital Work.—Medical Responsibility. —Surgical Dresserships and Clinical Clerkships.—Importance of Practical Surgery.—Medical Education must be "All Round." — Use of Modern Diagnostic and Therapeutic Instruments.—Value of Case-taking.—Cultivation of Literature. — Value of Professional History. — Professional Worthiness.

Honoured by the confidence of my colleagues, I am here to-day to address

a few words to old and new pupils, on the occasion of the opening of a new academical year.* I cordially and sincerely congratulate you on the choice which brings you here. Do not think you have chosen a calling which is likely to make you rich; very few earn affluence in our ranks. But you may confidently expect to secure an honourable independence, without the aid of patronage or party, if you have ability, and if you use it and your opportunities aright. I hope you already have some love for our profession; love of the kind that grows, and lightens labour. I hope a genuine and inalienable love for science has guided your choice; then you will always have joy in your work,

* Delivered in the Theatre of the Queen's Hospital at the opening of the Winter Session of the Clinical Schools of the General and Queen's Hospitals, October 1st, 1876.

a joy which will often mingle with duty and deepen into happiness when you pursue a profession which teems with humanising delights, and brings with its daily toil unfailing opportunity for doing good.

At a time when some of you, perhaps, may be inclined to over-estimate the relative importance of a purely professional, as compared with a general, training, pray let me tell you that you are not fitly prepared to come here unless you have been well grounded in the rudiments of a liberal education. All the examining boards now very rightly require that medical students, before entering upon their properly professional studies, shall pass a preliminary examination in the subjects of ordinary scholastic culture. In many cases, I am afraid, this examination is lamentably insufficient in scope and

severity. Depend upon it, the progress you may make in your studies here, no less than the position you will occupy hereafter in public and professional estimation, depends very greatly on the degree and extent of mental cultivation to which you have already attained.

Do not let your entry upon the particular studies of your profession be an occasion for laying aside the culture of general literature. Learn to turn to it with delight when severer studies press too hardly. I hope you have acquired a competent acquaintance with more languages than our own. I hope you are able to read, in that classic tongue which for ages was the common bond of men of letters and of science, the marvellous writings of the fathers of our art. I hope you are able, without wholly relying upon the treacherous aid of translations, to watch to some extent

the rapid progress of research and discovery in Europe. I advise you all to learn the elements of logic. The study of logic is a valuable means of mental exercise and discipline; it will help you much in the orderly and enduring acquirement of your professional knowledge, and in the cultivation of habits of accurate observation, of clear thought, and of precise expression. Logic now, as truly as ever, is the only art of arts, the surest foundation on which you can build. You will save yourselves many troubles and many errors if you learn to measure all things by its exacting canons, if you learn to test all things by its searching scrutiny. Were such discipline more general amongst us, it may be our ranks might yield fewer followers and apologists of those unscientific errors and hasty generalisations, which have given a brief life to one or two

insignificant sects outside the wide-embracing pale of general medicine.

You cannot profit fully by your hospital work until you have made some progress in your college courses. Although I advise you to attend regularly from the very beginning of your time upon hospital practice, you cannot fully avail yourselves of your opportunities in hospital work, you cannot, in a word, understand what you see and do, until you have made some progress in the simpler sciences which form the broad foundation of medicine. Apply yourselves, then, at once and with diligence, at the colleges to the study of anatomy, physiology, chemistry, materia medica, and botany. You must know them, and you cannot learn them here. You know you must acquire some considerable acquaintance with these subjects before you can

pass the earlier examinations of the licensing bodies. All through your curriculum you ought to attend the work both of the colleges and the hospitals of our school; but in the earlier part of your course give preference to the former, in the later you may allow prominence to the latter. Of course you must know the outlines of the marvellous structure of the human body, and something of its healthy development and working; you must have some appreciation of the chemistry of vital processes, of the secretions, and of the properties and action of remedial agents; you must have some acquaintance with the therapeutic preparations commonly used in medicine, before you can take an intelligent part in the relief of pain and the cure of injury and disease. I reiterate this warning in the hope that I may save some of you from

difficulties upon these points into which students are apt to fall. The work of a hospital, especially the surgical portion of it, has usually a great charm for the young student. It is right it should be so. But the charms of hospital surgery must not be permitted to lead the young student to neglect, in his earlier years, the more sober studies I have dwelt upon. There is a time for all things. You must remember that medicine is both a science, or, more truly, a complex group of sciences, and an art. Your training must first be mainly scientific, and then mainly practical. Before you know something of the principles of the science, you cannot appreciate the rules of the art. Cultivate order and method —the only sure means of economising time—in all you do. Be careful to assign its proper place to each of the subjects before you, and endeavour to

allot your time and thought to each in a measure correspondent to its relative importance. Do not fall into the too exclusive pursuit of any favourite science to the neglect of the others, and at the expense of the precious time you can devote to the technical part of your profession. Keep ever in view the practical end that is before you in your studies in this school. You do not come here merely to become good anatomists, or good physiologists, or good botanists, or good chemists, but, being these, to become good physicians and surgeons.

In choosing to become practitioners of medicine you have adopted a calling which often carries with its practice an enormous weight of responsibility—a responsibility more direct, more urgent, more personal, and more undivided than attaches to the pursuit of any other pro-

fession. You have undertaken to fit yourselves for dealing with questions of stupendous importance, with the health and sickness of individuals, of families, of communities, with life and with death. No education can be too severe, no preparation too exacting, no head too clear, no heart too pure, for such a task. Surely your training will not be complete for such a weighty burden of practice and of duty, unless it reach to morals and to character no less than to erudition, clinical experience, and technical skill. In the face of this responsibility I desire to urge you, as emphatically as I am able, to be diligent above all things in your attendance upon hospital practice. If you do your duty, in that practice you must take some active and personal part. You cannot merely "walk" a hospital. You do not come here merely to see our work, or to record your names. I have

a warm appreciation of the earnest and untiring labour which some few of you, as clerks and dressers, have already performed. But, to our senior students I desire to say, very plainly and in all friendliness, that you do not apply yourselves either in sufficient numbers or with sufficient diligence to the work of the hospitals. Opportunities are here freely within your reach for obtaining a competent practical knowledge of your profession. If you let them pass by now, unheeded and unimproved, they may never be redeemed; to most of you these opportunities, probably, will never again arise. To a very great extent you are masters of your future. The manner in which you spend your years now will colour the whole of your after lives. You are now either laying up for yourselves a treasure of coming triumphs or a bitter succession of disappointments.

The chief opportunities which are open to you for direct participation in hospital practice are to be found in the offices of surgeons' dresser and physicians' clerk. Each of you is required by the examining authorities to hold in turn a dressership and a clinical clerkship. If you spend three years in your curriculum, at least one year, and if your course of hospital attendance extend to four years, at least two years, ought to be spent continuously by each of you in one or other of these offices. I am aware I am advising you to exceed the requirements of the examining boards. Of course you come here to be trained in a prescribed career, and with the object of satisfying the examinational requirements of the examining boards, as to your fitness to receive diplomas conferring upon you authority to practise our profession. For all these objects, and for much more,

you must really qualify yourselves for the calling you propose to pursue, and you can only do so by an active and full use of all your opportunities for direct engagement in the recognition and treatment of cases of injury and of disease. You can only learn an art by practice. "*Précepte commence, exemple achève.*" Your private reading and your public lectures, important as they are, are only complements of practice; they cannot take its place, nor can they themselves even serve you fully without it. It is your duty to supplement your practical work by reading; but reading can never supersede it. Clinical lectures and tutorial instruction are of the highest value, and by their aid you may learn many things better and more easily than by other means. But not even these can stand in the stead of the work I urge upon you. The enthusiasm for teaching, which is so

pronounced a mark of our age, has had the effect, I am afraid, in medical education of crowding out the direct work of the medical student, by the frequency and elaboration of the discourses of his teachers. The very number and essential excellence of the clinical courses and demonstrations, which are now provided for pupils in our hospitals, sometimes tend, I fear, to divert you or displace you from your own particular work. In our Birmingham Medical School, since I joined it, we have seen many changes, some of merely effectiveless and restless movement, and some resultful and of progress, and amongst these transitions of the last twenty-eight years not the least striking has been a gradual multiplication of clinical lectures, interrogations, demonstrations, examinations, and of all the apparatus of teaching, and a progressive diminution of clinical clerks and dressers.

On the whole, I think it is best you should begin practical work for yourselves at the hospitals by being surgical dressers, and this is the course usually followed by our students. Afterwards you may become physicians' clerks, with work in the out-patient rooms, wards, and clinical laboratories; and you may remain with the physicians, or you may return to the surgeons, according to your time, tastes, talents, and prospects. I need scarcely urge upon you the enormous educational value of the surgical work which you can observe in our hospitals, and in the minor details of which you are permitted in some measure to take a personal part. It is of the highest importance that you should avail yourselves fully of your great opportunities for observing and assisting in the management, and especially the operative management, of

surgical injuries and diseases. Remember that while the objectivities of surgery carry some of its charms and many of its triumphs, they occasionally demonstrate its disasters. While the knowledge of practical medicine, no less important, and which you may now gather here, may hereafter keep you from many a tragedy, the knowledge of practical surgery, which is now within your easy grasp, may save you in the future from many a disgrace.

Medical education must be an "all-round" education. Specialisms, wise and unwise, should be specialisms of practice, not of educational training, at least not of early educational training. Most of you, if not all of you, will probably practise your profession in the honourable and useful place of a general practitioner. For the duties of such a position it is quite necessary that each

of you should become, so soon as may be, a good surgeon and a good physician. But if your ambition lead you even now to hope only to be either, learn you cannot truly be one—either a good surgeon or a good physician—at all events at first, without being the other. The sharp division between medicine and surgery, which you see in hospital work, and which exhibits to you now a line of separation on either side of which you may unwisely place an excessive sympathy, is a convenient division, but it is not a fundamental one. The boundary between medicine and surgery is well defined, but it is wholly arbitrary. Medicine and surgery, in science at least, are now absolutely one. An exclusive study of either is no longer justifiable; it is not even possible. While either can be purely practised, and while each is purely practised

with great advantage to the general public and to our profession, neither can be purely learnt. Purity in the knowledge of either is only an euphemism for an incomplete acquaintance with the one, and entire ignorance of the other. Physiology and pathology are the great links between medicine and surgery, or, more truly, their common foundation. But the whole range of experience and work in medicine and surgery is now so vast, and is so rapidly increasing, that a few practitioners will always be required in large centres of population who devote themselves in practice to one branch, or to one part of a branch, of professional work. But for you now, as students, whatever your future, there can be no such limitation. The practice of medicine and surgery, as established in hospital work, are alike required of you, and must alike receive your best attention.

There are several modern instruments of diagnostic and therapeutic employment of which you ought to learn the skilful use, and such use can best be learned during your student days in hospital practice. It is only by patient work, in the wards and in the out-patient rooms, that you can learn the use of the stethoscope, the laryngoscope, and the ophthalmoscope. If you would practise medicine on a level with modern knowledge, and, consequently, if you would practise it dutifully and with satisfaction, it is essential that you should be well acquainted with the use of these instruments. If you leave the hospitals without learning these things, you will find it almost impossible, in any other sphere of practice, to repair your neglect. The work of more than three-quarters of a century has established the stethoscope as a diagnostic

instrument of daily and absolutely indispensable use. By its aid you must train your ears to detect the wonderful sounds which arise in the body in the exercise of its healthy functions, and their manifold and complex variations in disease. You can only know these by hearing them for yourselves. No amount of reading, no lectures, however able, can teach you to recognise the crepitation of pneumonia, the rub of pleurisy, or the sounds of a healthy heart. Laennec's first stethoscope was a cylinder of paper, "formed of three quires, compactly rolled together and kept in shape by paste," one end of which he applied to the chest and the other to his ear.* With this instrument he made his original observations in 1816. After

* A Treatise on the Diseases of the Chest and on Mediate Auscultation, by R. T. H. Laennec, M.D.; Sir John Forbes's translation.

many experiments with various substances, he invented a wooden stethoscope and worked with it until he created the imperishable medical science of mediate auscultation.* Of the value of Laennec's discovery the late Dr. Stokes, of Dublin, in his great treatise on diseases of the chest, wrote:—"Time . . . has shown that his (Laennec's) principles of diagnosis were not the bagatelle of the day, or the brain-born fancies of an enthusiast; the use of which, like the universal medicine, was soon to be forgotten, or remembered only to be ridiculed. It has shown that the introduction of auscultation, and its subsidiary physical signs, has been one of the

* Laennec's book is a medical classic. Compared with what he discovered, relatively little has been added to pulmonary auscultation since his time. I advise all young physicians to take Laennec's original work and to master it thoroughly.

greatest boons ever conferred by the genius of man on the world. A new era in medicine has been marked by a new science, depending on the immutable laws of physical phenomena, and, like other discoveries founded on such a basis—simple in its application, and easily understood—a gift of science to a favoured son; not, as was formerly supposed, a means of merely forming a useless diagnosis in incurable disease, but one by which the ear is converted into the eye, the hidden recesses of visceral disease opened to the view, a new guide to the treatment, and a new help in the early detection, prevention, and cure of the most widely-spread diseases which afflict mankind."

You have ample opportunity, too, while you are hospital students, for becoming familiar with the uses of the laryngoscope and of the ophthalmoscope.

The laryngoscope has literally thrown light upon physiological, pathological, and therapeutic processes in the throat. By its aid we have become able exactly to observe and carefully to watch, and so to treat with fuller knowledge, a large group of important maladies,* and to apply remedies directly to the morbid tissues. The ophthalmoscope is essential to the modern diagnosis and treatment of many diseases of the eyes, and its use is also established in the clinical investigation of certain diseases of other organs, as in the contracting form of chronic Bright's disease and in inflammations and tumours of the brain and of its membranes. These instruments must

* By the aid of the laryngoscope I was able, in the year 1874, to divide the pathological progress of laryngeal phthisis into its four stages. *Vide* Clinical Lecture on Phthisical Laryngitis, by the author, published in *The Lancet*, January 30th, 1875.

not be reserved for specialists. There is much good in them, and you may master all the difficulties which attend their employment by a little patience and practice during your hospital course.

Your hospital work will be very incomplete if you do not "take cases." To take a case is to record in writing its history and progress. Reading, writing, and explanation have their proper places in medical education, as in all educations. Remember, "reading maketh a full man, conference a ready, and writing an exact man; therefore, if a man write little, he had need of a great memory; if he confer little, he had need of a present wit; and if he read little, he had need have much cunning to seem to know that he doth not know."* Francis Bacon also said, "histories make men wise," and I am

* The Essays, or the Counsels, Civil and Moral, of Francis Bacon. First published in 1597.

sure he would have included clinical histories. As a surgeon's dresser, or as a physician's clerk, it will be your duty to record, under the immediate supervision of one of your teachers, the daily progress of patients who suffer from injury or disease. To record, you must observe; to observe, you must examine.* And as you observe, your love for your work will grow. As Pope has it,

> "To observations which ourselves we make,
> We grow more partial for the observer's sake."

Careful case-taking is, perhaps, the best means for the acquirement of a serviceable knowledge of medicine. It accentuates experience. It makes experience of the kind which is real. Experience is not measured by length of

* Here is a good definition by a physician of the kind of observation I mean :—"Observer, c'est diriger de concert les sens et l'intellect vers un objet, afin de le mieux connaitre." – Gintrac : Pathologie.

years alone, but rather by how they have been spent. Medical experience is not made up alone of the number of cases "seen," but rather by how they have been observed, noted, and so remembered. Case-taking conduces to a systematic, synthetic, and logical arrangement of observations. You must write, as well as read and observe, if you wish to be fully trained in the medical arts. Prolix at first, your style will grow terser in time. You must begin by recording all you can observe. Soon your power of observation will greatly increase in acuteness; you will note circumstances which escaped you before. And as you store your minds you will see more and more. True of each of our senses, greatly is it so of our eyes that "the mind," as Bain says, "sees more than the sense perceives." With the augmented perception of practice will come increased discrimination. By

experience you will learn to note the essentials of each disease, and you will rightly estimate the subordinate value of accidental and less constant features. So you will avoid the tedious prolixity of untrained industry, from which medical literature has suffered so much. So, too, you will acquire real conciseness; not the spurious brevity of non-observation, but that intelligent terseness which strips the kernel from its coverings, and which comes from a capacity for discriminating between the trivial and stupendous. Do not be disheartened by slow progress at first. If you have brilliancy, and if you trust to it alone, you will often blunder; if you have none or little, but if you are content to work with patience and with method, you may, from slow and toilsome beginnings, acquire a marvellous quickness of perception, which will almost

seem an intuition, and on which you may rely with confidence. You will soon perform without effort what at first you only learnt with labour.

The love of medicine means the love of books, for medicine has a noble literature. Although you will have greater leisure for the purpose when you shall have passed your final examinations, I advise you to extend your reading, even now, beyond the text-books and manuals of the day. Of course you must read with discrimination. "Some books are to be tasted, others to be swallowed, and some few to be chewed and digested." * No other profession can rival ours in its literature. The sooner you learn to love its books and to be proud of them the better. In care, turn to them for rest; in dulness, for illumination; in loneli-

* Francis Bacon: Of Studies. Op. cit.

ness, for company; at any time, for joy.* If you have ambition to reach professional perfection and eminence, you will seek learning as well as skill. I am afraid we are less learned, as a profession, than we ought to be, and less learned than our predecessors were. Perhaps the rush of our later times, perhaps the multiplication of examinations, perhaps the "educative cram" of our days, tend to make us so.

In the best combinations in individuals of professional qualities, learning and skill, each in high degree, go together. In some one-sided instances we may find skilfulness in the illiterate, and much

* "Tu mihi curarum requies, tu nocte vel atra
Lumen, et in solis tu mihi turba locis."
Tibullus.

"My rest from care, my star in darkest night,
My company when alone, constant delight."
King.

learning in the clumsy. I think we suffer much from many of our learned brethren who are unskilful, yet much more, perhaps, from the skilful who are unlearned. It has been suggested recently by a distinguished authority that we should have a chair of medical history and biography in our schools.* I hope this proposal may soon be put into practice. Our profession has a great history. Its records are full of instances of great men whose lives of "daily beauty" remind us how precious are our privileges, and how much we may dare and do.

While you will find in a knowledge of the glorious achievements of the past, and in the lives of the masters of our art,

* By my friend Mr. Lloyd Owen, the eminent oculist, in his presidential address to the members of the Birmingham and Midland Counties Branch of the British Medical Association, June, 1889.

a strong stimulus to exertion and a salutary and sure safe-guard against self-conceit, I hope an acquaintance with the literature of your profession will help to fill you with a proportionate and fitting sense of the dignity and worth of your calling. If you feel this pride aright, you will keep your own honour bright and spotless, and you will be jealous of the honour of the body to which you belong. You will shrink from wounding a brother's reputation ; no one of you will shut himself up in selfish isolation from his fellows ; you will not labour only to get gold ; and you will ever be ready to make some sacrifice to accomplish work which tends to foster professional unity, and to raise your calling in public usefulness and esteem. Do not seek success by trying to drag others down, but by raising up yourselves. It is your duty to use all fair and honest means to secure, main-

tain, and advance your own repute; but you may do so most perfectly, indeed you can only do so successfully, while holding an unswerving regard for the interests and good name of your fellow-practitioners. If you do right and prosper, then will your success in life be hallowed and made sweet to you; and if you do right and fail, as perchance you may fail, then you may remember with thankfulness that if you keep only your good name you may be rich enough.*

And now I have done. I have striven, with many deficiencies, to set forth for you, my pupils, some outline of the work that is before you. I have spoken with an affection which springs from a pungent memory of the difficulties and dangers of your case. Be wisely bold. Look forward with confidence. Let the

* As Plautus has it:—"Ego si bonam famam mihi servasso, sat ero dives."

highest aims be yours. Let your minds be filled with a deep sense of your responsibility. Let your hearts ever grow in courage and in kindliness. Strive to discover the true and to practise the good. In such a spirit labour to profit by opportunity, and then

> "The secret consciousness
> Of duty well performed; the public voice
> Of praise that honours virtue, and rewards it;
> All these are yours."

CHAPTER III.

LATER THINGS.

"Est quadam prodire tenus, si non datur ultra."

HORACE.

"En suivant la vérité."—THE EARL OF PORTSMOUTH.

"Alles Gescheidte ist schon gedacht worden, man muss nur versuchen, es noch einmal zu denken."

GOETHE.

"Knowledge is proud, that he has learnt so much;
Wisdom is humble, that he knows no more."

COWPER: "Winter Walk at Noon."

"Wisdom is the balsam that keeps science from corruption."

ARCHBISHOP ULLATHORNE: "Ecclesiastical Discourses."

CHAPTER III.

LATER THINGS.

Modern Prominence of Examinations.—Importance of Therapeutic Research. — Recent Therapeutic Progress. — Scope of Therapeutics.—Conditions of Therapeutics.—Physiological Research in Therapeutics.—We must yet be Empirics.—Progress proceeds by the Discovery of the Unknown and the Perfection of the Known.—Medical Knowledge and Medical Wisdom.

Examination is the dominant "note" of our current medical instruction. This relative prominence of the processes of testing, as compared with those of training, is a development of

later times.* Two or three generations ago the leading principle of medical education was imitation. The good old system of apprenticeship was in vogue.† Now the student has set before him examinations he has to pass; then the apprentice had before him a master to imitate. Now our teaching is chiefly professorial or tutorial, and to a class; then it was more personal, and to an individual. There is much that is good,

* This chapter is founded upon an address I delivered in Queen's College, at the opening of the Winter Session, on October 1st, 1884, when it was my duty, in the office of President of the Clinical Board, to distribute the clinical prizes gained during the previous year in the General and Queen's Hospitals. I have added to it some passages upon therapeutic progress, which occurred in a presidential address I delivered in the following year to the members of the Birmingham and Midland Counties Branch of the British Medical Association.

† I do not think the old-fashioned apprenticeship for four years should be revived; but a year in a surgery is time well spent in preparation for any department of medical practice.

doubtless, in our present system of medical education; but I am afraid we have scarcely preserved all that was good in the system we have set aside. I dare say we have been gaining in professional knowledge. Have we not been losing somewhat in professional wisdom? We have been growing in scientific precision. Have we not sometimes been loosening, and are we not in danger of losing, some of our best traditions?

I hope those of you who will soon be furnished with your diplomas, to pass from our School to the various lines of practice which you may follow, are determined to make prominent in your future daily work the study of therapeutics, that is, the study of the use of remedies for the cure and relief of patients, and especially of the remedial actions of medicines. Surely we must each of us try to attain to a knowledge more exact,

to a scope more enlarged, and to indications more direct and more successful, of the therapeutic means by which morbid processes may be prevented and extinguished. We must try to place the art of "treatment" upon a broader and sounder basis—upon a basis less shifting, less empiric, more demonstrable, more effectual, and more scientific. If we watch the current methods of medical education, we shall soon observe that the details of practical therapeutics are not, as a rule, sufficiently dealt with by our teachers. The examining bodies, in their curricula, unfortunately join materia medica and therapeutics to form the single subject of one short summer course, and present it to the student in his first year, when his acquaintance with disease and with patients has scarcely begun. The art of treatment is now a neglected branch of medical

instruction; its neglect is not often felt fully by the pupil until he becomes a practitioner. Now that medical students are no longer apprenticed, to learn in the practice of a surgery the art of applied therapeutics, but pass at once from the school desk to the hospital ward, they especially need long and careful training in the science of treatment and in the art of prescribing. The elaboration of the scientific details of the medical curriculum, as contrasted with the practical work amongst remedies required by the obsolete custom of apprenticeship (a system which had many practical advantages)—the prevailing elaboration of the scientific details of the medical curriculum has too often crowded therapeutics out of the cognizance of the modern student of medicine. The duration of the course of lectures on materia medica, as now required by most of the licensing bodies,

is so short, and the period when these lectures are attended, namely, in the student's first summer session, is so inopportune, that justice is not done to the important range of practical subjects, such as pharmacy, pharmacology, the physiological actions of medicines, and the art of prescribing, which are huddled and hurried into this part of the current curriculum. Hence the young practitioner, when he has taken his diplomas and left his school, without sound training in the discrimination, combination, and application of remedies, too often finds himself imperfectly prepared for the practical responsibilities of his position, and he is in risk of abandonment "to the alternative of two great evils—a feeble and servile routine, on one hand, or a wild and lawless empiricism on the other."*

* Dr. Paris: Pharmacologia.

In these difficulties, hard work, a clear head, and a good conscience may still save him; but he may be tempted to a treacherous refuge by the easy charms and attractive nostrums of proprietary pharmacy, or seduced by one or other of those notorious therapeutic generalisations which can still captivate the ignorant, though they be tottering to their fall between the crutches of knavery and credulity.

We shall brighten our faith in the possibilities of therapeutic progress when we recall the marvellous practical advances which the healing arts have achieved within the last five-and-twenty or thirty years. I cannot now attempt to cite these advances in detail, but I believe a critical examination of them would show, that our power to cure and to alleviate disease has made more substantial progress within the time I have

named than it has gained within any similar period in the history of medicine. Our remedies have grown in simplicity and in range, in number and in precision. We have developed the uses of some good old drugs, and we have learned the uses of some good new ones. I am sure many instances of such progress at once occur to your minds. Here are some prominent examples. The salicylates have become established beyond question as powerful remedies in pyrexial rheumatism. Thirty years ago the use of the alkaline bromides in epilepsy and its allied disorders, now so familiar to us, was quite unknown. In nitrite of amyl and in nitro-glycerine have been found agents which can largely prevent, and which can markedly assuage, the agonising paroxysms of angina pectoris. In chloral, in croton-chloral, in iodoform we have found

serviceable new drugs. In our time, too, the indications for the use of digitalis as a cardiac sedative, and as a cardiac tonic of marvellous power, if rightly employed, have been clearly worked out, and incorporated amongst the most reliable staples of our art. What may be called the local treatment of diseases of the respiratory organs by the use of inhalations has been largely developed in recent years. Think, too, of the therapeutic field which we owe to the hypodermic syringe!

And now, gentlemen, if you will kindly bear with me a little longer, let me invite you to look forward. Surely the prospect, the prospect of our remedial art, is encouraging. Here and there the haze obscures, and here and there it hangs thick and low, but the clouds are clearing, and we can see many a broadening gleam of bright

blue sky. Let us remember the immensity of our prospect. The potentiality of our art is only bounded by the physiological possibilities of human life. Our art aims at the prevention and the cure of all disease. Towards this consummation, so devoutly to be wished, it is sure to grow. The lines of its development are plain, and we know them well. Only by slow experience, and only by the labours of many hands, can our progress be maintained. Little by little will our knowledge surely grow, but only by the experience of reliable observations, infinitely multiplied and laboriously compared. And from another aspect, and from one more immediately practical, we recognise the vastness of the scope of therapeutics. I need not remind my hearers that the art of therapeutics is not merely the administration of drugs. It is much

more than this; it includes every agency and circumstance which can favourably influence disease. It includes dietetics —what a patient ought to eat, what he ought to drink, and when and how; it includes balneology—an ancient therapeutic system which has a greater future; it includes climatology; it includes the physical resources of mechanics — a mine of boundless wealth, which in means for the evacuation of morbid collections, and for securing rest, immobility, and support, has achieved such brilliant results; it includes electricity, and other forms of gymnastics;* it includes the regulation of occupations,

* I place electricity and gymnastics together. I do so because my experience in the treatment of morbid conditions by electricity has taught me that electricity has no especial remedial efficacy outside the physical results of the muscular movements it may induce, as in the prevention of wasting in paralysed or paretic muscles by the application of faradic electricity.

pursuits, and amusements; and it includes many details of practical education, in their physical and psychical bearings upon growth and stability. The pharmacopœia only includes a relatively small portion of the remedies of the physician. I have long accustomed myself to the belief, and to charging my own therapeusis in my practice with the active application of such belief, namely, that there is not one of the adaptable circumstances of our lives which is not filled with the potentiality of therapeutic efficacy.

I wish the general mind of our profession were more clearly directed towards the pursuit of therapeutic progress. If the plainer conditions of such advancement were more generally recognised, and more generally kept in recollection, we might soon reap some substantial improvements. We must never

forget that we cannot pursue therapeutics successfully to the exclusion of other branches of medical art and science. We cannot be therapeutic specialists. It is clear to us all that we must know more, and a great deal more, of the causation of disease before we can construct a therapeutic science. I use the word science in its strictest sense. Hence, as therapeutists, we must watch and welcome all investigations into the nature and origin of pathological processes. We must cultivate, too, the art of clinical observation, and especially the art of diagnosis, for it is obvious that an accurate discrimination of the character of a disease must precede, in any particular instance, its intelligent treatment. And here, too, I think we shall agree that there is a distinct danger from undue specialism in practice. While what is known as specialism in

practice has done much to advance our remedial arts, and while specialism within certain limits is wisely accepted by our profession as a sound rule of conduct, I think we shall admit that there is an undue specialism against which we must guard, because it is a dangerous obstruction to real therapeutic progress.

But our therapeutic progress cannot rest upon clinical experience alone. Physiological research into the precise details of the powers of remedies, and such research directed towards the perfection and discovery of remedies, has already yielded good fruit in practice, and is full of promise. The two broadest and directest lines of therapeutic progress lie in these two fields of work, in clinical experience and in physiological research. Each supports the other, and neither can stand alone. While clinical

experience suggests specific wants, which physiological research may endeavour to supply, physiological research supplies new agents which clinical experience may test in practice. Clinical experience reveals the therapeutic effects of medicines; physiological research discovers only their physiological actions. The therapeutic effect of a medicine is its remedial efficacy in disease. The physiological action of a medicine has no necessary connection with its therapeutic powers; it is an effect it produces upon a living and healthy body. We shall fall into error if we assume that there is always a necessary connection between the physiological actions of a medicine and its therapeutic effects. There are some agents which have marked physiological actions, and yet are poor in therapeutic powers; and there are some remedies which have accepted thera-

peutic efficacies which exhibit scanty physiological manifestations. If we examine the matter closely, we shall find that in many instances the therapeutic effects of a remedy and its physiological actions are, so to speak, two distinct, but not separate, sides of its character. But, however these things may be, we cannot doubt that the more we learn about the physiological powers of remedies the more likely we are to understand, the more likely we are intelligently to direct, their therapeutic employment in our practice. So, if we would make progress in our powers to cure disease, and to relieve physical suffering, we must heartily help and patiently watch the physiological investigation of the actions of old and new remedies, and of old and new agents which may possibly become remedies. Our experience tells us that we shall often find,

that an agent which has particular and well-marked physiological powers has also the capacity of a remedy with distinct therapeutic actions. In this way physiological research suggests for us, and for our patients, new remedies, or new applications of old ones, and hands them on to clinical experience for test and for proof. Physiological research yields us a perennial spring of therapeutic progress—a spring in which our art may perpetually renew its vigour. Here is an abundant source from which we may draw an exacter knowledge. Here will the art of medicine become less empiric. Here will our science become more practical and our practice more scientific.

There is another condition of our work in the treatment of disease about which there has been much misconception, but about which we can scarcely

miss agreement if we weigh the case carefully. It is this: whether we like it or not, we must yet be mainly empirics in our practice. We must not be above being empirics. I do not mean empirics in any bad sense of the word. I do not even mean that there is any real opposition between true empiricism and scientific practice. The great bulk of our therapeutic knowledge is as yet empirical, and as empirics, though as rational and scientific ones, we must administer it. By this empiricism I mean only a knowledge which is founded upon experience. I mean a knowledge which grows from and with experience, and which in this sense is empiric, however scientifically it be applied. In much of our therapeutic work it is experience alone can test our results. Much of what we do we cannot explain, in the scientific meaning of the

word explanation, so we lean upon experience, and trust, with an empiric faith, that much of what we know may be true, though we cannot understand it. We expect much of further gain to our art from the discoveries and developments of physiological research into the action of medicines, and such research has already found us some valuable remedies, which an *a priori* reasoning has applied in practice, and which experience has confirmed. But, in our time, experience must yet be our chief guide in therapeutics. Here is a specific question which we have to answer every day. Why do I give this medicine to this patient? Not because it has such and such physiological effects, and I expect, therefore, that it will do good; but, because I have found its administration attended with advantage under similar circumstances; and this experience

satisfies me, and gives me confidence in using it again, until I know of a better remedy.

Progress has two sides. It advances with a double front—by the discovery of the unknown, and by the perfection of the known. What the unknown has in store for us we cannot say, but surely a mine of therapeutic progress lies ready at our hands in the perfection of the remedies we already know. The discovery of the unknown is reserved for a rare and great reward, as the guerdon of the few. Towards the perfection of the known we can all work, and none shall miss his prize. The discovery of the unknown bears fruit late, seldom, never, and splendidly; the perfection of the known bears fruit at once, always, continuously, and in bushels. Many good remedies are not fairly tried. A remedy has not failed when it has only been

employed improperly. Let us study again, and more closely, and by modern scientific methods, many a good old drug, such as arsenic and antimony, mercury and hemlock, sulphur, and turpentine. Let us watch, too, the marvellous developments of modern chemistry in their bearings upon our medicines. With a wide eye let us watch the sciences which are ancillary to ours, that we may translate their advances and resources into practical therapeutic utilities. Let us be reading, and reading old books, as well as doing other work. If we turn to the therapeutic literature of the past we shall find not only that the fittest remedies have not always survived, but that some of our most striking modern curative triumphs have been gained by old remedies which had long been forgotten, as, for instance, in the treatment of pyrexia by the affusion of cold water—a

revival and not a survival—a revival of the therapeutics of Currie, of Liverpool, at the end of the last century, and of the old time before him.* Venesection is worthy at least of partial revival, and is sure to come into vogue again. We might, too, give point and precision to much that we know if we revived a little of the evacuant treatment of our predecessors—a treatment which, although based upon a superseded humoral pathology, was often sound in its practical results—and, casting aside much of the modern tonic rubbish which so easily besets us, studied the unloading of the viscera, and

* Medical Reports on the Effects of Water, Cold and Warm, as a Remedy in Fever, &c., by James Currie, M.D., F.R.S.; Liverpool, 1798. Currie's book is a medical classic. It gives precise accounts of the author's successful treatment of pyrexia by the affusion of cold water, with full records of the clinical thermometry of particular cases, based upon observations of the "heat at the axilla" as shown by a Fahrenheit thermometer.

cultivated a robust therapeutics, based upon an accurate survey of the vital individuality of our patients.

I have been asked to say a few words especially addressed to the medical students who are here this evening, and who are about to begin or to resume their professional studies. To them I say—fellow students, you come to our School to get knowledge. It will not, I am sure, be the fault of our School if each of you do not get in it, in fair proportion, the knowledge it offers you. In our laboratories and in our books, in our museums and in our lecture rooms, and in our hospital wards and mortuaries, your several teachers, in their expositions and in their practice of the sciences and arts they profess, will continue to submit to your senses—to your eyes and to your ears, to your hands, to your noses, and to your mouths—an endless store of

objective facts in the sciences and arts of medicine; and in each of you it will depend upon himself—upon your capacity and upon the motives which guide your conduct—how much or how little of this objective knowledge you shall hold and make your own.

I am not going to urge you to seek knowledge for its own sake. Knowledge, like money, health, justice, truth, and virtue, is not an end in itself, however startling this fact may be when you first apprehend it. Knowledge, in its final appraisement, is only an intermediary means, which many good people are in the habit of mistaking for an end. Now, pray let me ask, why have you come to seek the knowledge, the particular knowledge, which we offer here? Because you want to become members of the great profession of medicine; and you are probably impelled to seek

entrance into our profession for no single or separate reason alone, but rather in consequence of a variety of motives, amongst which, scientific interest, honourable pursuit of worldly means, and pursuit of distinction, are probably the most powerful.

Now I am afraid many of you are apt to imagine, as most people do when they begin preparation for a particular career in practical business or professional life, that all you want now, that all you need seek, as students, is knowledge. You have heard very often that knowledge is power, and you are prone to think that if you have knowledge all things else will be added unto you. But surely this is not so. Knowledge is not power; but only its material. Knowledge is only power when wisdom points its employment. Even now and here, when and whither you have come to seek and find

knowledge, you must seek and find wisdom too, if you would grow in the skill and grace which the life you have chosen requires of you. "Knowledge comes, but wisdom lingers." As a psychological product, wisdom is infinitely more elaborate than knowledge. It is knowledge kneaded with exquisite complexity into every phase of your consciousness. Wisdom is knowledge which patient experience has intimately blended with your emotions and with your desires, with your volitions and with your beliefs. It is knowledge polished and finished, qualified and refined, tested and checked, proved and guided, by every pleasure which has thrilled you, by every pain which has cast you down, by every consideration you have felt of fitness and of prudence, of utility, and of duty.

The systematic knowledge we offer

you here, in this Medical School, in our instruction in the sciences and arts of medicine, is a matter-of-fact knowledge; it is a duly arranged aggregate of objective experience, which we present, through your senses, to your minds. Take care, take most watchful care, that you get a clear and certain perception of every fact which is placed before your understanding; for clearness of reproduction is impossible without previous clearness of perception. But the wisdom I ask you to seek, even now, is more than knowledge; it is far different. When you have begun to apply knowledge, in thought and action, to the best ends and true purposes of life, you have begun to be wise. When your self-love, your search after your own happiness, has been tempered by knowledge into prudence, and when your sympathy for others has been tempered by knowledge

into duty, you have begun to be wise, for you have been putting down your pride, learning the love of mercy, and growing in the power to judge and act rightly.* But, you may say, tell us how to do so much; how to get knowledge, to learn prudence and duty, and to be wise to do rightly. I answer, make it your business, even now, while you study to get knowledge in this College and in our hospitals, to study also the words, the acts, and the lives of some of those of our profession who, without trifling with truth, and without pliancy of principle, have achieved success and honourable competence, and the love and confidence of their brethren, and so you will learn how to prepare for professional life, as well as for professional diplomas.

* "And what doth the Lord require of thee, but to do justly, and to love mercy, and to walk humbly with thy God?"—Micah vi., 8.

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